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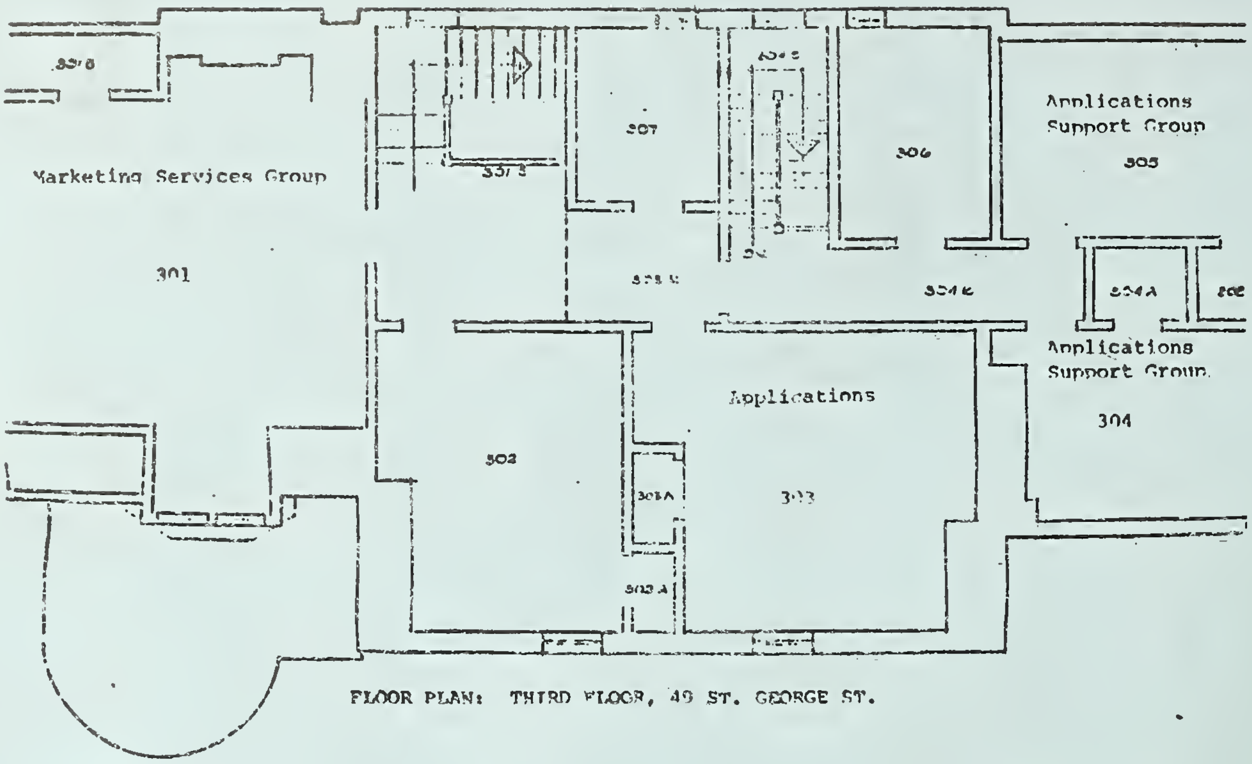

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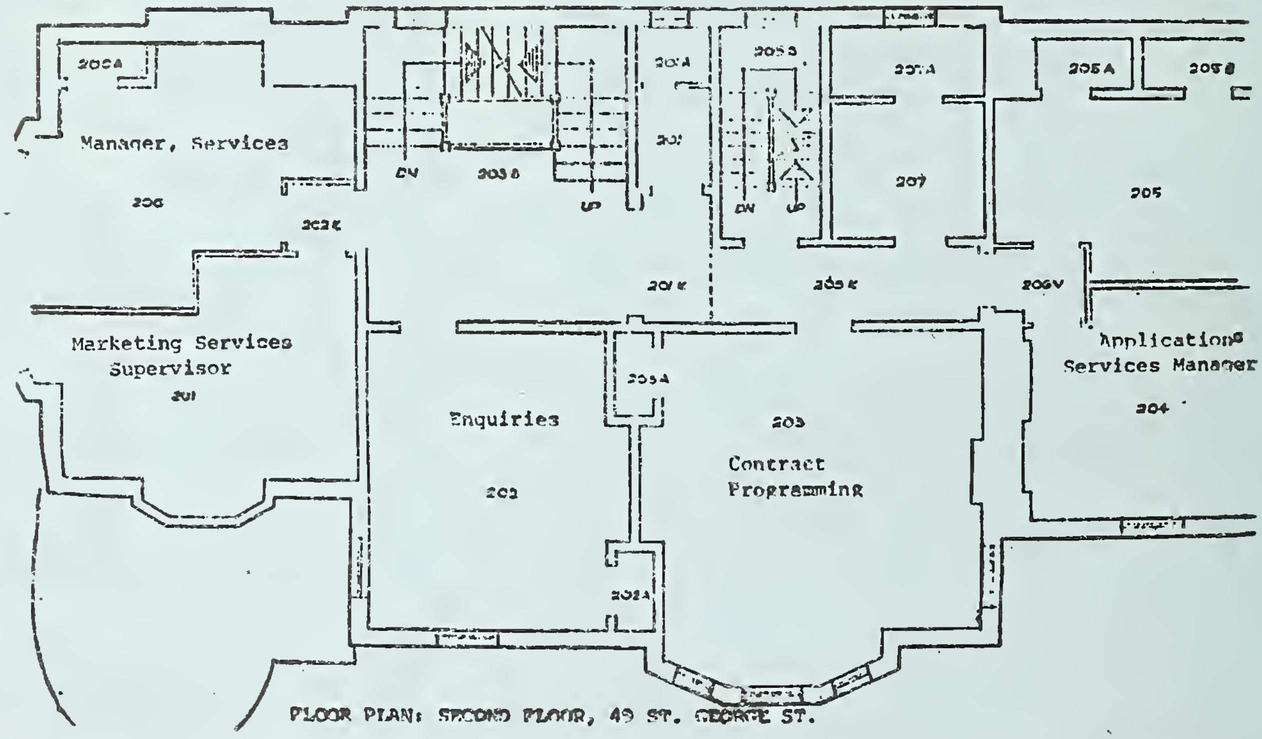

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COMPUTERNEWS is a monthly publication produced by the University of Toronto Computer Centre. Enquiries or contributions should be directed to the Editor, Janet Campbell or the Assistant Editors, Margo Harvie and Ruth Borenstein in the Sandford Fleming Building room SF125 or (416)-928-2066. Layout and ATS typing are provided by Lynne Jenkins. Subscription changes should be directed to the Information Office, Sandford Fleming Building room SF128 or (416)-928-4990.

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FAREWELL 7094

The May 1976 UTCC calendar contained in this issue of COMPUTERNEWS features the 7094 as a form of farewell tribute to that machine at UTCC. In preparation for the removal of the 7094 in the near future, UTCC has been working closely with 7094 users to assist them in modifying their programs for transferral to other UTCC systems.

The IBM 7094 was originally acquired in 1962 to replace the overloaded 7090. At that time the 7094 was touted as an extremely powerful computer, more than capable of handling the computing demands of the University of Toronto's computer user community. However, technological advance in data processing is fast moving and as the demand for more computing power and faster job throughput increased at the University of Toronto, the S/360-65 quickly replaced the 7094 as the main computer in the Computer Centre. Since 1971, the 7094 has been used by the Consortium of Physics and Chemistry Users for special 'number-crunching' applications such as the statistical evaluation and measurement of bubble chamber photographs, calculations on chemical kinetics, etc.

The fate of the 7094 has not yet been decided.

VICTORIA DAY HOURS OF SERVICE

The following hours of service will be in effect for S/360-65 users during the Victoria Day holiday period:

May 22 (Saturday)	May 23 (Sunday)	May 24 (Monday)
9:00 - 18:00	9:00 - 18:00	running unattended

Normal hours of service will resume Tuesday, May 25, 1976.

Users are reminded that due to problems with vandalism, all UTCC public terminals are closed on statutory holidays.

Kam Jain

USERBOOK KWIC INDEX AVAILABLE

A Keyword Index for USERBOOK Section 3 (S/370-165-II Services) is now available. The index references only the base chapters of Section 3; optional modules are not included. Keywords are listed alphabetically along with the immediate context and the page number.

The large size of the Index makes the distribution of individual copies impossible, but reference copies are now available in the Information Office, SF128, Advising Office, SF117 and at the various batch terminal locations.

User comments or suggestions regarding the KWIC Index are welcome and should be directed to Ian Darwin, Room 303, 49 St. George, 978-7318.

Ian Darwin

IBM MANUALS PRICE INCREASE

UTCC users are advised that the price of IBM Use Key G manuals purchased at the Information Office has been increased. This price increase reflects the increased cost to UTCC for these manuals.

In the past, the Information Office was able to make IBM Use Key G manuals available for a service fee only. As a result of recent policy changes at IBM, all IBM use Key G manuals are now fully chargeable items to UTCC. This change in IBM policy has necessitated the revision of the UTCC IBM manuals price list to include the IBM charge plus a markup of approximately 20% to offset extra costs incurred by UTCC due to manuals which cannot be sold or returned for credit.

Users are also advised that IBM has suspended all cash sales of manuals and that it will no longer be possible to purchase manuals directly from IBM.

Due to the size and volatility of their publications price lists, IBM does not make price lists available for general distribution and therefore UTCC is unable to quote exact prices for manuals on order. The usual lead time required for delivery of manuals is six weeks and it is possible that prices may change between the time they are ordered and the time they are delivered.

Anyone wishing to order manuals for course activities should do so well in advance of the date when the manuals will be required. UTCC will be able to keep any such large order of manuals in stock for approximately two months before returning the remainder for credit.

Use Key G manuals can be borrowed from IBM at no charge providing the manual is returned within 90 days. IBM does not loan Use Key S manuals to the University community at large. However, interested professors can contact the IBM Branch Office and request a Use Key S manual for a period of up to 90 days.

Don Gibson

DECUS SPRING 1976 SYMPOSIUM

Attendance at the spring DECUS Symposium, April 6 - 9, 1976, in Hyannis, Mass., numbered nearly 500 representatives from DEC user groups in the United States, Canada and Europe. A large contingent of DEC representatives from the Maynard, Massachusetts corporate head office and plant turned out to talk about technical problems, corporate policy and new products. Topics included:

DECSYSTEM-10

- TOPS-10 Operating System
- Utilities (Disk, Tape, Archive, accounting)
- Monitor Crash Analysis
- Mass Storage Devices
- Front end software
- Language Processors (ALGOL, FORTRAN, COBOL and APL)
- Standards and Documentation

Corporate Policy

- Product Overview
- Pricing
- Customer Maintenance Services
- Software Support
- Field Service
- Larger Computer Systems

cont'd...

DECUS SYMPOSIUM Cont'd.

DIGITAL presented the new and larger successor to the DECSYSTEM-10, the DECSYSTEM-20. The DECSYSTEM-20 offers more of everything - virtual memory, refined communications interfaces and a very advanced multiprocessing and timesharing environment, as well as predictions of total systems' stability by 1980.

Most of the sessions were quite technical. The flexibility of the TOPS-10 operating system seems to have encouraged a widespread do-it-yourself attitude and ability among DEC users. Moreover, my impression was that DEC users prefer to rely on DIGITAL software products and appeals to DIGITAL for software enhancements, making the DEC user community a very difficult market for software vendors.

We came away very impressed and with a strong desire to code machine language for the DECSYSTEM-20. We also found DIGITAL's difficulties with the implementation of ALGOL and APLSV to be unfortunate and only attributable to the difficulties of growing up in a computer world dominated by IBM standards.

A new and final release of ALGOL (Version 7) will be available sometime between June and September of this year.

APL on the DECSYSTEM-10 has only been available for about 2 years. The new version of APL for the DECSYSTEM-10 and -20 does not support some of the features which are available at UTCC as a result of the implementation of APLSV with the TSIO auxiliary processor. It does, however, implement APL/360 and has, among other things, partially solved the problem of APL interfaces to the host system by enabling both an APL-ASCII translation and a facility for routing output normally destined for the terminal to a line printer or an ASCII file, though not dynamically from the problem state.

As a member of an older and more experienced APL community, UTCC was invited to speak on APL and, in particular, on DATATALK which remains an APL-based service unique to the University of Toronto. We spoke to an audience of over 50 DEC users. Copies of our paper 'DATATALK and Other Applications of APL' are still available and an independent review of the sessions will appear in the Symposium Proceedings available from DECUS.

The next DECUS Symposium will be held December 6-9, 1976, at the MGM Grand Hotel, Las Vegas, Nevada.

Ernst Goetze

HSJS PROFESSOR'S MEETING

The following items were discussed at the High Speed Job Stream Professor's Meeting held March 31, 1976 and to which all Educational Computer Account holders were invited:

cont'd...

HSJS MEETING Cont'd.

1. Removal of Processors

There were no objections made to UTCC's proposal to remove the PLUTO and ASSIST compilers. (Less than .6% of the jobs were run under these compilers).

2. Implementation of 'Total Limits'

UTCC presented its proposal to establish limits on total resource usage (compilation and execution, CPU time and output) for each HSJS job. Some objections were voiced to the proposal. It was felt that processors which produced a formatted listing of the source would be at a disadvantage. However, there were no objections to imposing a CPU limit.

3. Addition of Processors

UTCC is currently planning to implement PL/C version 7.5, WATFIV-S Version 1 Level 5, and the latest versions of SP/k and WATBOL by September 1, 1976.

4. Access Controls for HSJS

The possibility of implementing HSJS access control as a method of screening out non-legitimate users was discussed. Several schemes have been proposed, but it was felt that the most reasonable was a software system whereby each HSJS job would be required to contain a $ACCT card valid for a limited number of runs and for a limited amount of time. Cards would be distributed by professors to their students. This system would pose certain problems, however. Professors would be burdened with distributing the cards and the system itself would have to be designed in such a way that it couldn't be easily modified by students. No strong objections to this scheme were voiced.

The next meeting will be held in September or October. Advance notification will be sent to all Educational Computer Account holders. Anyone else interested in attending is encouraged to contact Mark Tapia, room SF125, 978-7109.

Mark Tapia

PERSONNEL CHANGES

We have two new employees to welcome this month in the Services area. Gail Cavers has taken over Wendy Kaye's position as Receptionist in the Information Office and Ingrid Fraser is now working in I/O, replacing Adam Love as a Computer Operator.

Jackie Henderson who previously worked in Information Systems at 215 Huron has transferred to Student Record Services.

We hope Gail and Ingrid like working with us and best of luck to Jackie in her new position.

June Bridges

RECENT ACQUISITIONS IN THE DEPARTMENT OF COMPUTER SCIENCE LIBRARY

Aczel, J. and Daroczy, Z.
On Measures of Information and their Characterizations.
New York, Academic Press, 1975.

American Society for Information Science.
Proceedings of the Annual Meeting no. 10-11 (1973-1974)

Ball, W.W. Rouse and Coxeter, H.S.M.
Mathematical Recreations and Essays, 12th edition
Toronto, University Press, 1974.

Berlekamp, Elwyn R.
Algebraic Coding Theory.
New York, McGraw-Hill, 1968.

Boolos, George S. and Jeffrey, R.
Computability and Logic.
Cambridge, University Press, 1974.

Borodin, Allan, and Munro, I.
The Computational Complexity of Algebraic and Numeric Problems.
New York, American Elsevier, 1975.

Computer Personnel Research Conference.
Proceedings, No. 12 (1974)

Computer Personnel Research Conference.
Proceedings. No. 13 (1975)

Davis, Philip J. and Rabinowitz, P.
Methods of Numerical Integration.
New York, Academic Press, 1975.

Elson, Mark.
Data Structures.
Chicago, Science Research Assoc., 1975.

Nicholls, John E.
The Structure and Design of Programming Languages.
Reading, Mass., Addison-Wesley, 1975.

Schank, Roger C. et al.
Conceptual Information Processing.
Amsterdam, North-Holland, 1975.

Streeter, Donald N.
The Scientific Process and the Computer.
New York, Wiley, 1974.

Symposium on Mathematical Foundations of Computer Science, 3d, Jadwisin, Poland, 1974.
Mathematical Foundations of Computer Science, ed. by A. Blikle.
Berlin, Springer-Verlag, 1975.

Tanenbaum, Andrew S.
Structured Computer Organization.
Englewood Cliffs, N.J., Prentice-Hall, 1976.

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SIMSCRIPT II.5

SIMSCRIPT II.5 Release 8E was installed on the system at the beginning of April. It is supplied to UTCC free-of-charge by Consolidated Analysis Centers, Inc. SIMSCRIPT is a discrete event simulation language using the event scheduling approach, rather than the process interaction approach of GPSS. In some ways, this approach is easier to understand and code. UTCC has now taken over support for this system, so reliability should improve as updates will be promptly applied. Information on SIMSCRIPT II.5 is available in the Information Office, SF128 and at the New Physics Terminal. Users who are interested in obtaining further information are invited to call John Roth at 978-8823.

John Roth

MPSX/MIP USERS

Release 1 Modification Level 6 PTF 17 of IBM's Mathematical Program System eXtended (MPSX) was installed on the system at the beginning of March. It includes some fixes to known problems, but unfortunately fails to solve the problem that arose when a user tried to use a REVISE with a large problem. This matter is being pursued with IBM.

Since installation, the Mixed Integer Programming (MIP) feature of this package (specifically the catalogued procedure MPSXMIP on which UTCC's usage statistics are based) has not been used. UTCC is therefore considering dropping the MIP feature. Anyone currently using or planning to use the MIP feature should contact John Roth at 978-8823 or Stan Yagi at 978-7331. If no response is received, this feature will be removed from the system.

John Roth

DYNAMO USERS

Dynamo provides two useful features which are not widely used. These are the Number routine and the Documentor routine. Briefly, the Number routine is used to punch a serialized model deck, which is a requirement of the Documentor routine. Optional reformatting of the deck is also available.

The Documentor generally provides a concise, formatted description of the model. It produces an alphabetic list of quantities used, along with a cross reference of where they were used, plus a list of all equations. All quantities have titles associated with them given in comment fields or on NOTE cards in the model deck. These two routines are described in Appendix G of the Dynamo II User's Manual, which is available in the Information Office, SF128 or at the New Physics Terminal.

A problem recently arose when a user tried to use a deck punched by the procedure NUMBER as input to DCMNTR, the documentor procedure. It appears that the Documentor program will not properly process card input, but accepts input from a dataset. Therefore, the procedure DCMNTR has been changed to call Number first, which must usually be done anyway, and pass the numbered 'deck' to the documentor via a temporary dataset.

cont'd...

DYNAMO USERS Cont'd.

The old version of DCMNTR is now named DYNDOC and should be used only when the numbered deck is not on cards. Users who are having difficulty with Dynamo or who require further information should call John Roth at 978-8823.

John Roth

BMD UPDATE

An update, dated December 24, 1975, has been applied to the BMD series of routines. Modifications were not distributed for all routines; however, the majority of routines have been updated. The standard JCL automatically accesses the updated library.

In addition, up-to-date source modules corresponding to the new BMD load modules are available in APPL.STATLIBS and can be punched or listed using the RETRIEVE utility.

Len Prepas

SPEAKEASY SESSIONS

KAPPA Revived Temporarily

On April 1, 1976, the KAPPA version of SPEAKEASY expired. Users may have received the message:

XX EXPIRED VERSION XX.

This situation has been corrected both by temporarily changing the expiry date for KAPPA and by making LAMBDA the default version. However, KAPPA will most likely expire permanently in the near future, so users should not attempt to access it (i.e. do not specify LEVEL at all). Users experiencing problems with LAMBDA should contact Ian Darwin, 978-7318, 49 St. George, room 303.

Ian Darwin

GPJS - SOFTWARE USAGE STATISTICS

The following chart summarizes the software usage per classified procedure and program names for the General Purpose Job Stream - March 3, 1976 - April 1, 1976.

Software	Uses (#Jobsteps)	(%)
ALGOL	12	0
APLSV	22	0
ASM	555	1
ATSUTIL	1	0
COBOL	431	1
CSMP	191	0
DATATEXT	230	0
DBUGUTIL	14	0
DISKUTIL	1,879	5
DSUTIL	5,114	14
DYNAMO	91	0
FORTRAN	9,086	26
GPSS	2,307	6
GRAPHICS	2,046	5
JCLUTIL	138	0
LISP	18	0
MARKEXAM	23	0
MARKIV	447	1
MPS/MPSX	737	2
OSUTIL	261	0
PAPERTAP	77	0
PL/I	3,875	11
RPG	100	0
SAS	28	0
SERVAID	264	0
SNOBOL	1,030	2
SORTMERG	1,240	3
SPEAKEZ	177	0
SPSS	2,667	7
SSP/BMDD	767	2

cont'd...

GPJS - SOFTWARE USAGE Cont'd.

TAPEUTIL	379	1
TIPRS	15	0
TSO	52	0
XFR	385	1
TOTAL	34,659	

Kin Fong

S/370-165-II RELIABILITY

The reliability statistics for March indicate an uptime percentage of 96.8 while the average number of unscheduled IPL's per day reached 1.03. The number of scheduled hours of production for March totalled 524.

MONTHLY COMPARATIVE FIGURES

MONTH	% UPTIME	UNSCHED. IPLs/DAY
Jan/75	95.7	2.77
Feb/75	96.0	1.14
Mar/75	96.7	1.10
Apr/75	98.6	0.70
May/75	99.4	0.60
Jun/75	97.4	0.79
Jul/75	95.2	1.23
Aug/75	97.6	0.83
Sep/75	99.1	0.87
Oct/75	97.2	1.13
Nov/75	95.8	1.63
Dec/75	99.4	0.48
Jan/76	99.1	0.43
Feb/76	98.9	0.97
Mar/76	96.8	1.03

The percentage breakdown for total system downtime for March was:

Hardware: 849 minutes (84.2%)
Software: 130 minutes (12.9%)
Other : 29 minutes (2.9%)

The major events contributing to these downtime totals were as follows:

March 2- 37 minutes down - 5 IPLs

a. 14 minutes attributed to a loss of TSO response on 3705 channel errors.

b. 12 minutes charged to two supervisor loops.

c. 11 minutes due to a 4-step problem state loop.

March 9 - 44 minutes down - 5 IPLs

a. 20 minutes caused by two supervisor loops.

b. 24 minutes attributed to an "A05" machine error.

March 10 - 26 minutes down - 3 IPLs

a. 7 minutes charged to a HASP catastrophic error.

b. 19 minutes due to two system loops on ITEL 7330-3 control unit checks.

March 14 - 387 minutes down - 1 IPL

a. All time attributed to the inability to load system after IBM engineering changes. Corrective maintenance located a "loose" wire in the 3165 (CPU). 90 minutes later, the system dropped into an A14 wait state and IBM was recalled. Additional maintenance found a "loose" board in the 3165.

March 15 - 163 minutes down - 1 IPL

a. All time charged to March 14 problem with loose board in the 3165.

cont'd...

S/370-165-II RELIABILITY Cont'd.

March 16 - 202 minutes down - 1 IPL

a. 157 minutes due to additional corrective maintenance on the 3165 (CPU). A bad card was replaced in Frame 4.

b. 45 minutes attributed to IBM swapping "heads" in the 2301 (Drum).

March 29 - 38 minutes down - 4 IPLs

a. 15 minutes charged to a supervisor loop followed by an O.S. wait on re-IPL.

b. 18 minutes due to a problem state loop followed by HASP abends on S804.

Paul Scarborough

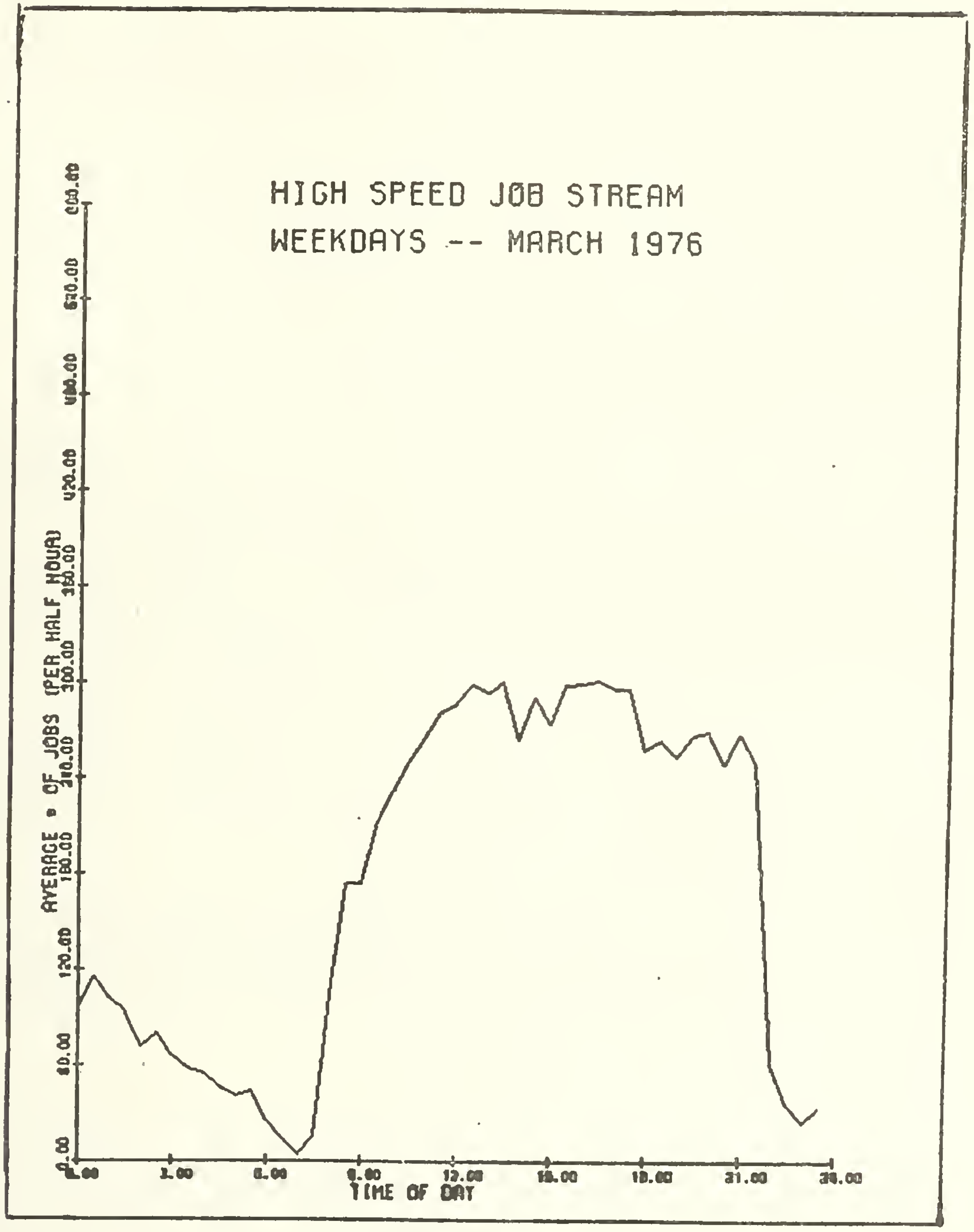
```
                 DOWNTIME_REPORT_ON___S/370__FOR_MAR_76

-------------------------------------------------------------------------------------------------------------------------------
|                                                      REIPLS(UNS) // DOWNTIME (MN)                                            |
| DAY  REIPL   DNTIME 0    5    10   15   20   25   30   35   40   45   50   55   60   65   70   75   80   85   90   95   100|
=====================+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+|
| M  1     2      18  |□□****************                                                                                     |
| T  2     5      37  |□□□□□********************************                                                                  |
| W  3     0       0  |                                                                                                      |
| T  4     0       0  |                                                                                                      |
| F  5     1      10  |□*********                                                                                            |
| S  6     0       0  |                                                                                                      |
| S  7     0       0  |                                                                                                      |
| M  8     3      17  |□□□**************                                                                                     |
| T  9     3      44  |□□□*****************************************                                                          |
| W 10     3      26  |□□□***********************                                                                           |
| T 11     0       5  |*****                                                                                                 |
| F 12     0       0  |                                                                                                      |
| S 13     0      15  |***************                                                                                       |
| S 14     1     387  |□*************************************************************************************************** 387 |
| M 15     1     163  |□*************************************************************************************************** 163 |
| T 16     1     202  |□*************************************************************************************************** 202 |
| W 17     0       0  |                                                                                                      |
| T 18     0       0  |                                                                                                      |
| F 19     1      10  |□*********                                                                                            |
| S 20     0       0  |                                                                                                      |
| S 21     0       0  |                                                                                                      |
| M 22     1       6  |□*****                                                                                                |
| T 23     3      15  |□□□************                                                                                       |
| W 24     1       5  |□****                                                                                                 |
| T 25     1       5  |□****                                                                                                 |
| F 26     0       0  |                                                                                                      |
| S 27     0       0  |                                                                                                      |
| S 28     0       0  |                                                                                                      |
| M 29     4      38  |□□□□**********************************                                                                |
| T 30     0       0  |                                                                                                      |
| W 31     1       5  |□****                                                                                                 |
-------------------------------------------------------------------------------------------------------------------------------


LEGEND        : ONE □  =ONE UNSCHED. IPL
                ONE *  =ONE MINUTE OF DOWNTIME


                TOTAL SCHEDULED HOURS OF PRODUCTION :  524
                TOTAL DOWNTIME (MN)  : 1008 , AVG/DAY :  32.52 , AVG/PROD HOUR :   0.99
                TOTAL UNSCHED. IPL'S :   32 , AVG/DAY  :   1.03
                DOWNTIME RATE IS     :  3.21 PERCENT OF SCHEDULED PRODUCTION HOURS
```

HSJS MONTHLY STATISTICS

During the month of March 1976, 224,454 jobs were processed compared with 229,678 for the previous year, a decrease of 5%.

The following charts summarize the HSJS activity for the month of March. The graph represents the average number of jobs processed during each half hour period of the day.

Mark Tapia


HIGH SPEED JOB STREAM
WEEKDAYS -- MARCH 1976

RESOURCE USAGE BY PROCESSOR

			TOTAL PER PROCESSOR			AVERAGE PER USE		
PROCESSOR	#USES	%TOTAL	CPU (MIN)	#CARDS READ	#LINES PRINTED	CPU (MIN)	#CARDS READ	#LINES PRINTED
WATFIV	106442	(47)	1287.18	11951319	15997126	0.012	112	148
PL/C	54065	(24)	1260.23	12080350	18259906	0.020	220	336
OTHER*	22832	(10)	271.42	1147633	3006074	0.012	48	128
UTILITY	8515	(4)	23.67	966608	1195523	0.000	112	140
WATBOL	7722	(3)	167.40	2939003	3307242	0.020	380	428
LISP	7102	(3)	82.86	873656	1984638	0.008	120	276
ASMG	7040	(3)	131.42	1317398	2654054	0.016	184	376
SPITBOL	5291	(2)	46.72	527180	781233	0.008	96	144
ALGOLW	3563	(2)	40.42	866941	1123142	0.008	240	312
SIMON	1688	(1)	7.02	116103	131133	0.004	68	76
PLUTO	124	(0)	1.08	10884	15612	0.008	84	124
ASSIST	70	(0)	0.72	16704	20335	0.008	236	288
TOTAL	224454		3320.14	32813779	48476018	0.015	146	215

* SP/K, SPSSQ and SNAP.

INTERACTIVE SYSTEM RELIABILITY

The uptimes achieved for the month of March for each of APL and ATS were 99.11% and 99.18% of scheduled operation, respectively. The number of scheduled hours of operation for the month of March totalled 505, while the number of unscheduled IPL's per day was 0.06. In addition to the scheduled time, Interactive Services were also available for approximately 100 hours of unattended weekend operation. The percentage breakdown of total system downtime for March was: HARDWARE - 241 minutes (100%). Two unscheduled IPL's were required as a result of the failures. The major events contributing to downtime were as follows:

March 12 - Daily backups overlapped into normal production hours due to data and equipment checks on tape drives.

March 22

a. The clock was set incorrectly during Initial Program Load thus necessitating a shutdown of APL and ATS in order to correct the problem.

b. 31 minutes of downtime were attributed to console lockout which resulted in an E04 abend in the 1052 communications link.

March 31 - 199 minutes of downtime were attributed to a hardware problem in the processor storage. The IBM customer engineer was notified and the problem was eventually isolated and a defective card at location 01CB3K6 was replaced.

The following table summarizes the time lost out of scheduled hours of production due to system failures for each of the systems.

Kam Jain

DATE	DOWNTIME (mins)		REASON
	APL	ATS	
Fri Mar 12	31	11	Backups overlapped into production hours (HARDWARE)
Mon Mar 22	8	6	IPL clock set incorrectly (OPERATIONAL)
" " "	31	31	*1052 console locked out (HARDWARE)
Wed. Mar 31	199	199	*Storage check-replaced card in 2365 (HARDWARE)
TOTAL	269	247	* IPL REQUIRED

System failures March 1 - 31, 1976

DATATALK DIALOGUES: DATATALK ESTIMATES CONSTANTS

What's the best estimate for a constant, K, such that K=Y/X, where X and Y are series of observations drawn from populations that are known to be highly correlated?

More exactly, we were given that

X=35 35 38 40 40 42 44 46 50 50

and that

Y=4.9 4.0 4.1 4.6 5.2 5.9 5.3 6.1 5.5 6.4

It's easy to calculate that Y/X is

```
    Z←Y÷X
    Z
0.14 0.11429 0.10789 0.115 0.13 0.14048 0.12045 0.13261 0.11 0.128
```

And so we calculated an estimate for K as the mean of these ratios:

```
    MK←(+/Y÷X)÷ρX
    MK
0.12387
```

That was too easy!

We really want to use the estimate for K to <u>predict</u> Y from X and, of course, if we can predict Y from X then we should also be able to predict X from Y.

Hence, this problem has at least four solutions, i.e., the solutions, K, to the following four equations:

1. $\underset{K}{MIN}\ \Sigma\,(K-Y/X)*2$
2. $\underset{K}{MIN}\ \Sigma\,(Y-KX)*2$
3. $\underset{S}{MIN}\ \Sigma\,(X-SY)*2,\ K=1/S$

and

4. $\underset{K}{MIN}\ \Sigma\,(X-Y/K)*2$

depending on your point of view.

DATATALK DIALOGUES Cont'd.

Elementary calculus then gives the following results which expressed in the programming language APL, are:

```
    MK1←(+/Y÷X)÷ρX
    MK1
0.12387

    MK2←(X+.×Y)÷X+.×X
    MK2
0.12372

    MK3←÷(X+.×Y)÷Y+.×Y
    MK3
0.12471

AND

    MK4←(Y+.×Y)÷X.×Y
    MK4
0.12471
```

Did we really calculate four answers to just one simple problem?

Well...no. The solution MK1 is correct if we intend to estimate the mean of the random variable Y/X and the solutions MK2, MK3 and MK4 are correct and entirely consistent with the Least Squares solution to the problem Y=KX.

For the APL programmer, it's interesting that the APL keyboard primitive function, ⌹, for the solution of the least squares problem, 'does the right thing' when applied to the equation Y=KX or X=(1/K)Y. Namely,

```
    MK2=Y⌹X        AND        MK3=MK4=X⌹Y .
```

For the biologist who just needed the answer,

```
    K=MK2=0.12372
```

and the square of the correlation coefficient of Y and X is

```
    R*2=MK2÷MK4=0.99211
```

DATATALK DIALOGUES Cont'd.

DATATALK continues to provide information and solutions to problems that demand convenient solutions.

DATATALK is a service of the University of Toronto Computer Centre and is available to anyone within the University of Toronto community at no charge. Please call us at 978-6710, 9am-6pm, Monday-Friday throughout the summer months.

Ernst Goetze

UTCC COMPUTER EQUIPMENT

SYSTEM/370 MODEL 165-II

- located in SF103/105/112
- provides General Purpose Job Stream, High Speed Job Stream, APL SV and TSO services
- 3072K bytes of memory
- 1 drum (2301)
- 14 disk drives (3330)
- 8 disk drives (2314)
- 7 magnetic tape drives (5 9-track and 2 7-track)
- 6 display consoles
- 6 printers
- 5 card readers
- 1 card punch
- 8 remote batch terminals
- 1 paper tape reader
- Calcomp plotters (11" and 30")
- Gould plotter (11")
- OS/MVT with HASP

SYSTEM/360 MODEL 65

- located in McLennan Physical Laboratories
- provides APL and ATS services
- 1536K bytes of core
- 24 disk drives (2314)
- 3 9-track magnetic tape drives
- 1 printer
- 1 card reader
- 1 card punch
- 140 typewriter terminals
- OS/MVT with APL and ATS

7094 II

- located in Room 1203 Burton Tower
- 32K words of core
- 1 disk
- 8 magnetic tape drives
- input/output via a 1401 computer

COMPUTER RESEARCH FACILITY

- located in SF207
- DEC GT44 Systems with
  - 1 PDP-11/40 CPU
  - 2 9-track dual density tape drives
  - 1 1000 cpm card reader
  - VT17 graphics display unit
  - 1 lab. peripheral system with A/D & D/A
  - 1 CVI 260 Video Bandwidth Compressor
- DEC GT40 System with
  - 1 PDP-11/10 CPU
  - 1 2314 tape disk drive
  - 1 VT12 graphic display unit
  - 9-track/800 BPI tape drive
  - 1 Calcomp microfilm plotter

UTCC DIRECTORY

	ROOM	PHONE 978-
DIRECTOR		
John C. Wilson	SRS218	2206
ASSOCIATE DIRECTOR		
Al Heyworth	SF214C	4936
ADMINISTRATION MANAGER		
Dave Scobie	SF143	8948
INFORMATION OFFICE		
General Inquiries	SF128	4990 or 4991
Don Gibson	SF128A	
MANAGER, SERVICES		
Stan Yagi	SG200	7331
MANAGER, MARKETING AND CONTRACT PROGRAMMING SERVICES		
Dave Scobie	SG201	6877
COMPUTING CO-ORDINATORS		
Sandford Fleming Terminal		
Mark Tenia	SF125	7109
Program Advisors	SF117	8599
Erindale		
Clem DiPlacido		828-5311
Scarborough		
Raymond Shen		284-3173
Arts and Science		
Dave Tritchler	SS2104	6509
New Physics		
John Roth	NP1202	8823
SUPERVISOR, APPLICATIONS SUPPORT		
Herb Kugel	SG304	7286
MANAGER, OPERATIONS		
Derry Cox	SF113	7092
SUPERVISORS, OPERATIONS		
Paul Scarborough (S/370-165-II)	SF114	6220
Kam Jain (S/360-65)	NP333	7374
Dave Wong (S/370-155)		6864
MANAGER, SYSTEMS		
Rein Mikkor	SF116	5058
SYSTEM HARDWARE SUPERVISOR		
Eugene Siciunas	SF113	4967
SUPERVISOR, 7094 SERVICES		
William Beasley	NP1207	7094
MANAGER, COMPUTER RESEARCH FACILITY		
Dennis Smith	SF214B	4800
LAB CO-ORDINATOR (CRF)		
Krishna Patnaik	SF207	4086
ACCOUNTS		
Ann DeFazio	SF139	7148
Wynona Bardgett	SF139	8702
ACCESS CODES		
Yvonne Bowen	SF139	8703
ASSISTANT MANAGER, INFORMATION SYSTEMS TERMINAL		
George Milo		5040

NOTE:

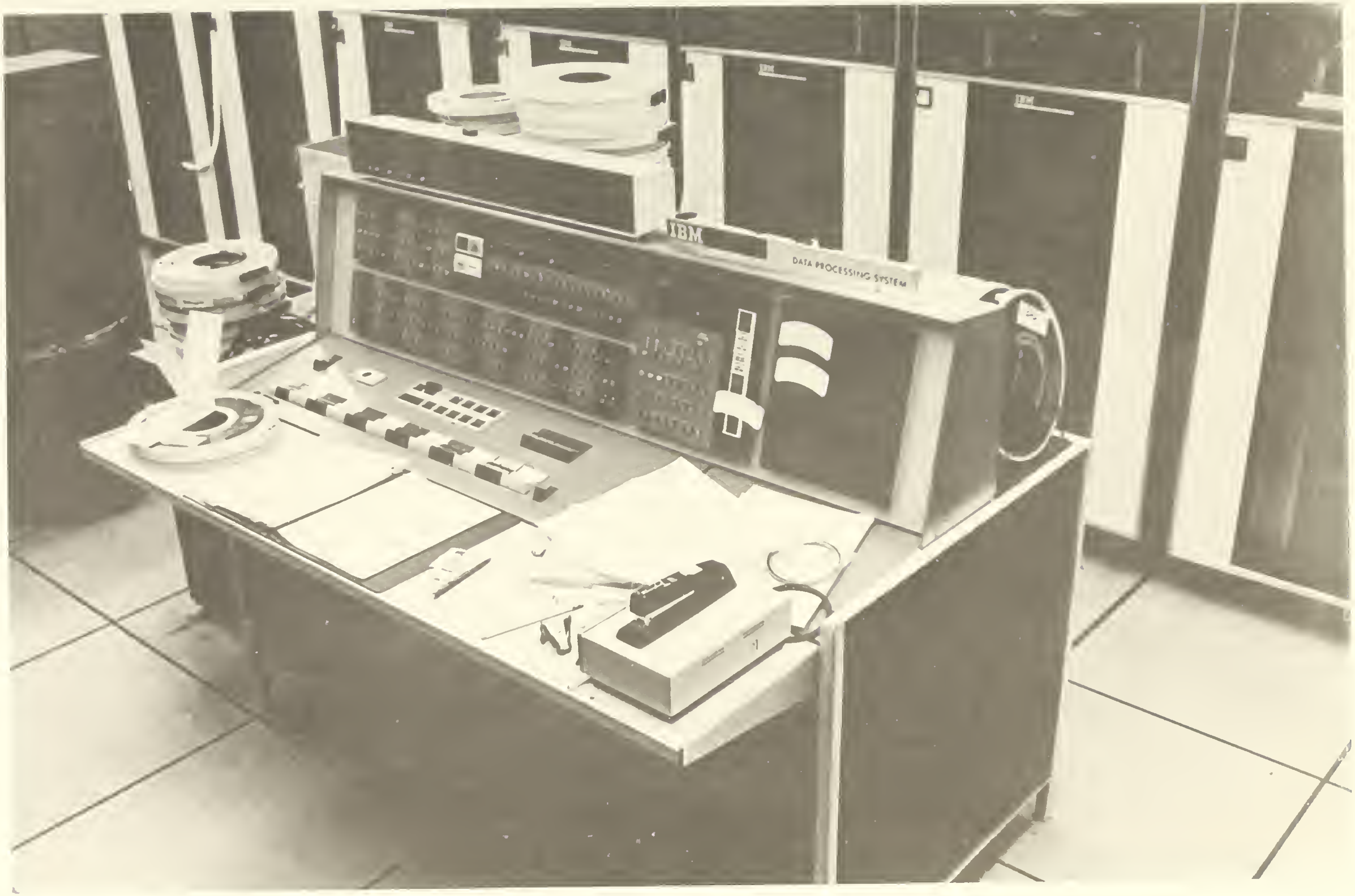
SF = Sandford Fleming
SG = 49 St. George
NP = McLennan Physical (New Physics)
SS = Sydney Smith
SRS= Student Record Services

JOB AND SYSTEM STATUS QUERIES

SYSTEM/370, TSO	7373
ATS/APL	6234
7094	7094
2741 TERMINAL MALFUNCTIONS	7107
029 KEYPUNCH MALFUNCTIONS	6465

SERVICES

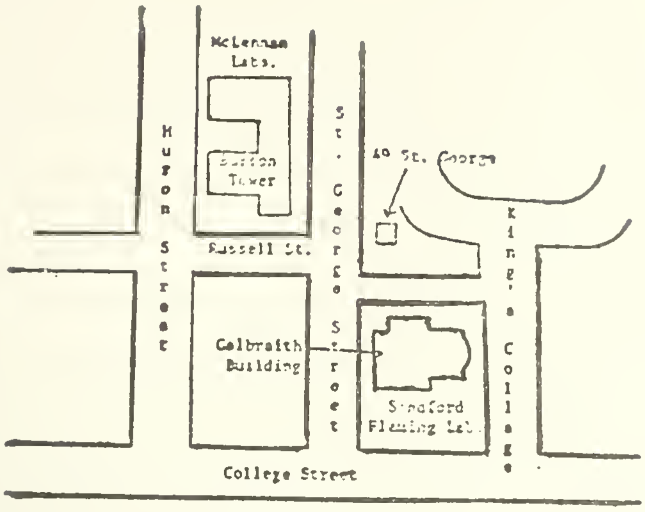
	DIAL-UP	ADVICE
APL - 2741	7200	6710
APL(ASCII)	7200	7107
APL SV - 2741	7239	6710
APL SV - TTY	7447	6710
ATS	7100	7107
TSO - 2741	7303	8599
TSO - TTY (10 cps)	7399	8599
TSO - TTY (30 cps)	7386	8599
DATATALK	6710	6710

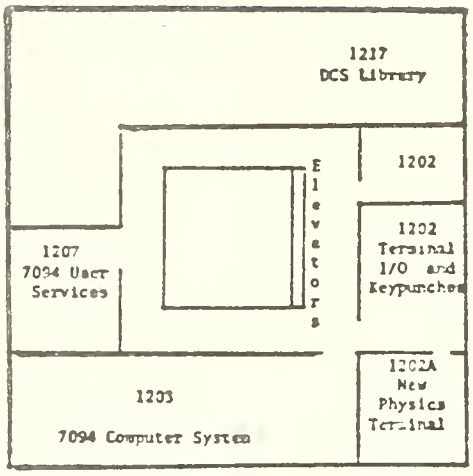


7094

Sun	Mon	Tues	Wed	Thurs	Fri	Sat
						1
2	3	4	5	6	7	8
9	10 DATA LOGIC MARK IV SYSTEMS DESIGN COURSE TORONTO	11	12	13	14	15
16	17	18	19	20	21	22
23 30	24 S/370 closed S/360 unatt'd 31	25	26	27 DATA LOGIC JCL COURSE TORONTO	28	29

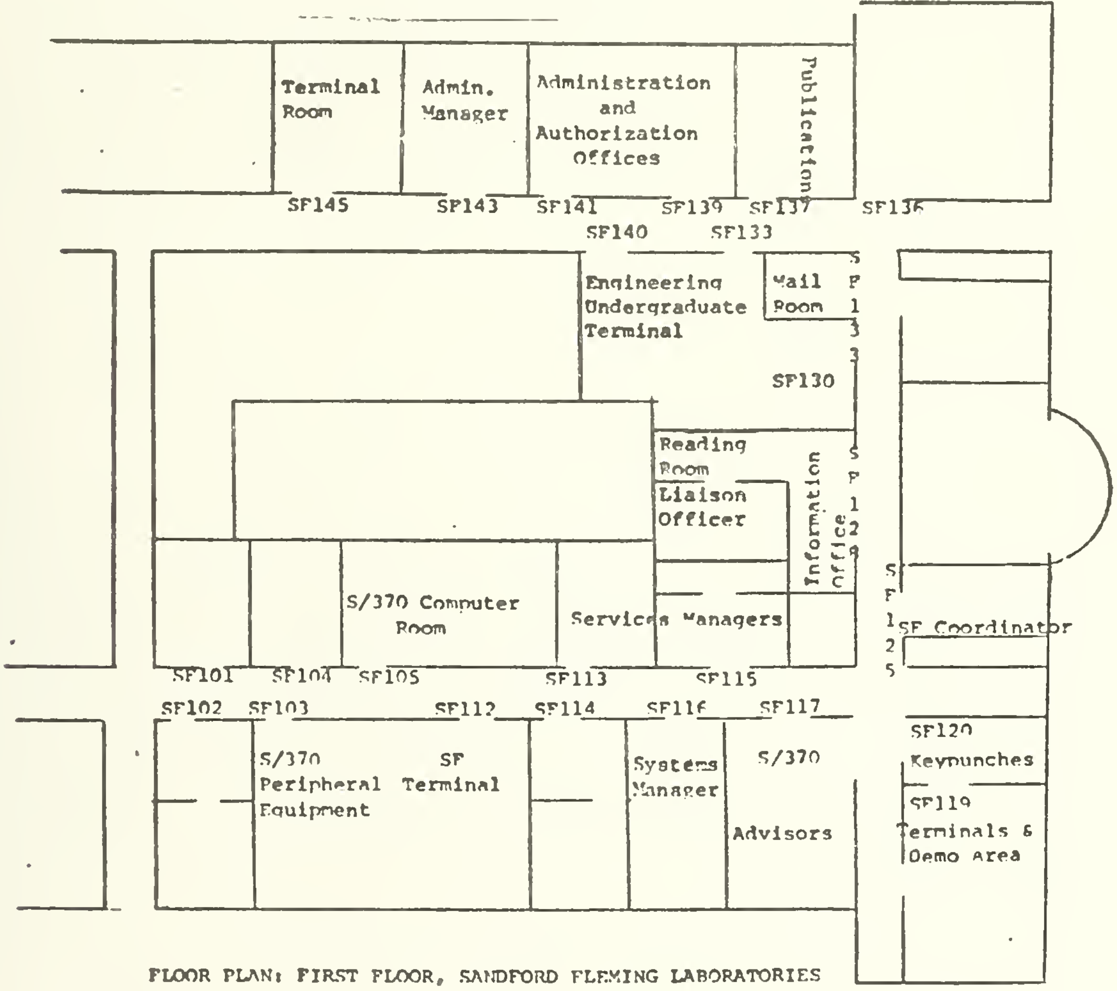
MAY 1976



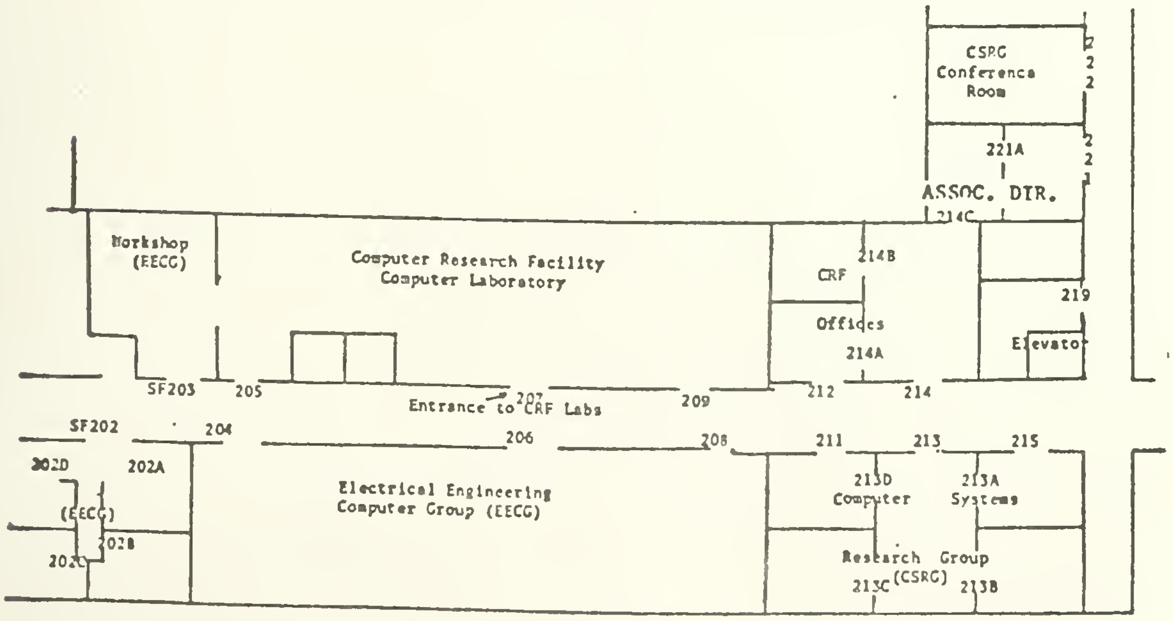


FLOOR PLAN: TWELFTH FLOOR, BURTON TOWER

UNIVERSITY OF TORONTO COMPUTER CENTRE



FLOOR PLAN: FIRST FLOOR, SANDFORD FLEMING LABORATORIES



FLOOR PLAN: SECOND FLOOR, SANDFORD FLEMING LABORATORIES